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ONR ltr dtd 26 Oct 1977

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PROPERTIES OF TROPICAL WOODS

Report No. 29

Progress on the Investigation of the Properties of Tropical Woods for the Period September 1 to October 31, 1952

Project N6-ori-44, Task Order XV

Office of Naval Research

United States Navy

November 1, 1952

New Haven, Connecticut

PROPERTIES AND USES OF TROPICAL WOODS: Report No. 29

Progress on the Investigation of the Properties of Tropical Woods for the Period September 1 to October 31, 1952

This report is one of a series of bi-monthly status reports covering progress on the investigation of properties of tropical woods that is being conducted at Yale University, School of Forestry, in cooperation with the Office of Naval Research, United States Navy, under Contract N6-ori-44, Task Order XV (Project designation number NR-330-001).

Since the beginning of the academic year on September 15, a work schedule comparable to that followed during previous years has been re-established. At the present time, in addition to a project supervisor who devotes half of his time to this project, two graduate students are employed on a half-time basis. Four additional students are employed on a part-time basis. Part-time employees average 10 hours each per week.

I. Mechanical Properties

During the period covered by this report emphasis has again been placed on the testing of air-dry material. With seasoning studies now complete on 33 logs from Surinam and Brazil, the seasoned lumber has been bulk-piled in preparation for mechanical testing. Tests have been completed on material from 6 of these logs representing 2 species. This brings the status of completed testing of air-dry material to 201 logs representing 59 species. Since the last report, computations for material tested in the green condition have been partially completed on 24 logs. Results will be available for publication in the next progress report. When these are complete, the tabulation of material for which computed green strength data are available will total 268 logs representing 93 species.

II. Physical Properties

Shrinkage. Table 1 presents all results currently available from shrinkage studies which were not published in Tropical Woods No. 98. In some cases results include corrections of data presented conditionally in earlier progress reports.

Decay Resistance. Testing continues on 20 logs currently under investigation. All previous results of decay resistance tests have been published in Tropical Woods No. 98 or summarized in Progress Reports Nos. 21 and 27.

In the retest program using the soil technique, test blocks of Buchenavia capitata and Dicorynia paraensis are being weighed in preparation for exposure. A summary of completed pilot tests and a final decision on the exposure time required using the soil technique will be presented in the next progress report.

III. Seasoning Properties

Observations of air-seasoning characteristics have been completed on all material currently available. Results not previously reported are being tabulated for presentation in a future report.

Table 1. SHRINKAGE PROPERTIES OF TROPICAL AMERICAN WOODS [1]

Species [2]	Source	No. of Logs	Specific Gravity green volume basis	Shrinkage, percent			
				Radial	Tangential	Longitudinal	Volumetric
Licaria cayennensis	Surinam	1	1.03	5.6	8.4	0.09	12.8
Hymenaea parvifolia	Brazil	1	1.03	3.1	7.0	0.17	11.6
Platymiscium Duckei	Brazil	1	0.94	5.3	5.6	0.14	12.5
Manilkara Huberi	Brazil	1	0.93	6.8	9.4	0.13	16.0
Tabebuia serratifolia	Surinam	2	0.91	6.6	8.0	0.15	13.3
Ecclinusa sp.	Brazil	1	0.91	5.3	8.5	0.14	13.5
Licaria cayennensis	British Guiana	3	0.86	5.3	7.4	0.25	12.2
Licania buxifolia	British Guiana	3	0.88	7.0	11.6	0.30	17.2
Eschweilera subglandulosa	Surinam	3	0.87	5.8	10.3	0.28	15.9
Tabebuia sp.	Brazil	1	0.83	4.9	7.3	0.08	11.5
Enterolobium Schomburgkii	Brazil	1	0.83	4.7	11.2	0.22	16.1
Vouacapoua americana	Surinam	2	0.76	4.6	6.0	0.15	11.3
Minquartia guianensis	Costa Rica	3	0.76	5.4	8.3	0.30	14.0
Licania sp.	Surinam	1	0.76	5.8	11.4	0.26	16.6
Licania macrophylla	Surinam	3	0.76	6.7	10.6	0.31	16.2
Mezilaurus itauba	Brazil	1	0.75	2.4	6.6	0.36	9.2

Table 1. (cont'd.)

Species [2]	Source	No. of Logs	Specific Gravity green volume basis	Shrinkage, percent			
				Radial	Tangential	Longitudinal	Volumetric
Hymenaea oblongifolia	Brazil	1	0.74	3.8	7.4	0.24	10.7
Goupia glabra	Brazil	1	0.72	3.9	8.2	0.28	12.0
Glycydendron amazonicum	Brazil	1	0.72	3.3	6.8	0.19	11.5
Diplotropis purpurea	Surinam	1	0.72	4.8	7.0	0.26	11.8
Aspidosperma desmanthum	Brazil	1	0.72	6.6	9.7	0.38	15.8
Parinarium campestris	Surinam	2	0.69	5.9	10.0	0.30	14.6
Astronium LeCointei	Brazil	1	0.69	4.4	8.4	0.29	12.6
Ormosia paraensis	Brazil	1	0.68	3.6	7.4	0.66	12.0
Goupia glabra	Surinam	2	0.67	5.1	7.8	0.08	13.2
Parinarium excelsa	British Guiana	3	0.66	5.9	9.7	0.27	15.2
Aspidosperma Duckei	Brazil	1	0.66	3.8	7.4	0.15	11.4
Copaifera reticulata	Brazil	1	0.64	4.4	9.2	0.08	14.6
Hymenolobium excelsum	Brazil	3	0.63	4.4	7.1	0.37	10.1
Eschweilera tenax	Venezuela	2	0.62	3.4	6.4	0.55	10.9
Vitex orinocensis	Venezuela	1	0.53	2.1	6.1	0.16	8.4
Cordia Goeldiana	Brazil	2	0.53	4.7	8.1	0.12	11.5

Table 1. (cont'd.)

Species /2	Source	No. of Logs	Specific Gravity green volume basis	Shrinkage, percent /1 Radial	Tangential	Longitudinal	Volumetric
Sapium biglandulosum	Venezuela	2	0.50	3.0	6.4	0.39	7.7
Couratari pulchra	British Guiana	4	0.46	3.6	5.7	0.33	8.1
Swietenia macrophylla	Brazil	1	0.42	3.5	4.6	0.14	8.9
Spondias mombin	Venezuela	2	0.40	3.4	5.8	0.20	10.0

/1 Shrinkage values represent shrinkage from green to oven-dry condition expressed as a percent of the green dimension.

/2 Species arranged in order of decreasing specific gravity (green volume basis).

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